



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,373	10/10/2002	Mark A. Lillis	PES-0075	1008
23462	7590	04/29/2005	EXAMINER	
CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			RUTHKOSKY, MARK	
			ART UNIT	PAPER NUMBER

1745

DATE MAILED: 04/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/065,373

Applicant(s)

LILLIS, MARK A.

Examiner

Mark Ruthkosky

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/16/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-10 and 17-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 11-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/2/02.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed 12/2/2002 has been placed in the application file, and the information referred to therein has been considered as to the merits.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andrews et al. (US 6,036,827) in view of Ono et al. (JP 401066537 A.)

The instant claims are to a process for operating an electrochemical system, comprising calibrating a hydrogen gas detector by passing a hydrogen-free gas through a first conduit to the hydrogen detector, wherein the hydrogen gas detector generates a first signal; flowing a known quantity of hydrogen gas from a hydrogen/water separator through a second conduit to the hydrogen gas detector, wherein the hydrogen gas detector generates a second signal corresponding to a percentage of the hydrogen gas in the mixture; and calibrating the hydrogen gas detector based upon the first and second signals; introducing water to an electrolysis cell; producing hydrogen; separating hydrogen from water in the hydrogen/water separator;

introducing environmental gas disposed around electrochemical system components to the hydrogen gas detector; and determining the hydrogen concentration in the environmental gas.

Andrews et al. (US 6,036,827) teaches a process for operating an electrochemical system introducing water to an electrolysis cell; producing hydrogen; separating hydrogen from water in the hydrogen/water separator; introducing environmental gas disposed around electrochemical system components to the hydrogen gas detector; and determining the hydrogen concentration in the environmental gas (see col. 7, line 30 to col. 8, line 50 and col. 21, line 50 to col. 22, line 10.)

The reference does not teach calibrating a hydrogen gas detector by passing a hydrogen-free gas through a first conduit to the hydrogen detector, wherein the hydrogen gas detector generates a first signal; flowing a known quantity of hydrogen gas from a hydrogen/water separator through a second conduit to the hydrogen gas detector, wherein the hydrogen gas detector generates a second signal corresponding to a percentage of the hydrogen gas in the mixture; and calibrating the hydrogen gas detector based upon the first and second signals. The reference teaches that if the detection of hydrogen is at a high concentration the hydrogen source would be shut down and the hydrogen and the carrier gas would dissipate into the atmosphere (col. 34, lines 1-11; col. 21, line 60 to col. 22, line 15.)

Ono et al. (JP 401066537 A) teaches a method of calibrating a hydrogen gas detector by passing a hydrogen-containing gas to a hydrogen detector, wherein the hydrogen gas detector generates a first signal; flowing other concentrations known concentrations of hydrogen gas with a non-hydrogen gas (equivalent to the hydrogen free gas mixed with hydrogen in the instant application) to the hydrogen gas detector, wherein the hydrogen gas detector generates a second signal corresponding to a percentage of the hydrogen gas in the mixture; and calibrating the

Art Unit: 1745

hydrogen gas detector based upon the signals. Other points of calibration are recorded. The reference does not teach the method at applied temperatures or pressures.

It would be obvious to one of ordinary skill in the art at the time the invention was made to calibrate the hydrogen gas detector taught by Andrews et al. (US 6,036,827) using the method of comparing relative output signals based on the amount of a known concentration of hydrogen, as taught by Ono et al. (JP 401066537 A), in order to accurately detect the hydrogen concentration in the environmental gas. The reference does not teach passing a hydrogen-free gas through a first conduit to the hydrogen detector or flowing a known quantity of hydrogen gas from a hydrogen/water separator through a second conduit to the hydrogen gas detector, however, one of ordinary skill in the art would recognize from the teachings of Andrews et al. (US 6,036,827) that a common source of a known quantity of hydrogen gas would be most available from the hydrogen generating system in order to calibrate the system as a hydrogen source as taught by Ono. Further, it would be obvious to use various known concentrations of hydrogen in order to develop a calibration curve including a hydrogen free gas as noted in Ono. This will provide a low-end signal value for calibration.

With regard to claim 13, the background section of the instant specification teaches that coupling hydrogen producing electrolysis cells with fuel cells is well known in the prior art, forming regenerative fuel cells. The background further notes that calibrated hydrogen gas detectors for these systems are also well described. It would be obvious to one of ordinary skill in the art at the time the invention was made to couple the hydrogen and oxygen of the electrolyzer to a fuel cell in order to generate electricity as the coupling of the hydrogen source

Art Unit: 1745

to a fuel cell is well known in the art to fuel a fuel cell and generate electricity. The artesian would have found the claimed invention to be obvious in light of the teachings of the references.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited references include general teachings and relevant features as to the state of the art at the time of the invention.

Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 571-272-1292.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free.)

MARK RUTHKOSKY
PRIMARY EXAMINER

Mark Ruthkosky
4/25/05